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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/918,922      | 07/30/2001  | Roger Paulman        | 11362/14            | 6577             |

7590 04/16/2007  
William F. Prendergast  
Brinks Hofer Gilson & Lione  
P.O. Box 10395  
Chicago, IL 60610

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| EXAMINER |
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DUONG, THO V

|          |              |
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| ART UNIT | PAPER NUMBER |
|----------|--------------|

3744

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE  | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS                               | 04/16/2007 | PAPER         |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

09/918,922

Applicant(s)

PAULMAN ET AL.

Examiner

Tho v. Duong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 January 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/23/07 has been entered.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-7 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claimed subject matter of "the sidewalls have a first portion...forming an overall U-shaped configuration." is not supported by the original disclosure. Applicant has disclosed (page 9, lines 8-11 and page 14, lines 7-17) a plurality of species wherein the species of "U-shaped configuration as a whole" as argued in the Remark, has only one sidewall (16) collapsed. The multi-collapsed walls (figures 10A-D) do not appear to have a U-shaped configuration as a whole.

Claims 1-7 are further rejected as can be best understood by the examiner.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zifferer (US 5,409,057) in view of Geppelt et al. (US 5,092,038) and Zifferer (US 5,311,661). Zifferer'057 discloses (figures 6,7,16-17 and column 5, lines 15-20) an elongated heat exchanger tube comprising an elongated tube (1), with a wall thickness of 0.025 (in) having first and second ends and an internal passageway (3) extending between the first and second ends, the tube being formed from a sidewall; at least two collapsed portions of the sidewall of the elongated heat exchanger tube extending substantially along a length of the elongated tube, the two collapsed portions contacting each other within the passageway of the tube. Since the contacted portion of the collapsed portions is not permanent bonded, the at least two collapsed portions of the sidewall of the tube are capable of being expandable radially outward to push the at least two collapsed side wall portions outward so that they no longer contact each other; and the collapsed portions define at least two elongated recesses (5) extending substantially along a length of the tube. Zifferer'057 discloses (figure 16a) that the heat exchanger assembly has an integral one-piece return bend formed from the elongated tube. Zifferer does not disclose that the heat exchanger assembly has a fin set that connected with the tube. However, fin on tube was well known in the heat exchanger art. Geppelt discloses (figure 14) a heat exchanger assembly that

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has a corrugated tube (10) equipped with a fin set (26) for a purpose of increasing the heat transfer surface area of the tube. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Geppelt's teaching in Zifferer's heat exchanger assembly for a purpose of increasing the heat transfer surface area of the tube. Zifferer'057 and Geppelt substantially disclose all of applicant's claimed invention as discussed above except for the limitation that the collapsed portions have a U-shaped configuration. Zifferer'661 discloses (figures 9-11 and column 4, lines 63-column 5, line 3) that the sidewalls have a first portion and a second portions (27) opposite each other on the heat exchanger tube and collapsed to be in close proximity to each other and the sidewalls as a whole of the collapsed portion (27) have U-shaped configuration for a purpose of forming a square pattern tube that fit inside a square cross section shell without requiring any filler to prevent cross circulation of the fluid in the heat exchanger using the tubes. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Zifferer'661 teaching in Zifferer'057 for a purpose of forming a square pattern tube that fit inside a square cross section shell without requiring any filler to prevent cross circulation of the fluid in the heat exchanger using the tubes.

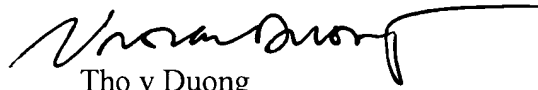
### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tho v. Duong whose telephone number is 571-272-4793. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tyler J. Cheryl can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Tho v Duong  
Primary Examiner  
Art Unit 3744

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April 6, 2007